

Table 1 -- RBR Text Changes

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RBR_id	req_key	req_category	segment	req_type	s_verification_method	s_verification_status	a_verification_method	a_verification_status	text	interpretation text
PGS-0440#A	4178	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall accept from the DADS L0-L4 data products. Received information shall contain at a minimum: a. Product identification b. L0-L4 data set c. Metadata required for processing d. Current date and time e. DADS identification	A: TRMM (CERES, LIS) <u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture.</u> <u>Items c, d and e are not included in the current interface; PDPS provides product identification in the form of a UR to SDSRV to retrieve products; any required metadata is included with the product.</u>
PGS-0450#A	4179	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall accept from the DADS ancillary data sets. Received information shall contain at a minimum: a. Product identification b. Ancillary data set c. Metadata required for processing d. Current date and time e. DADS identification	CERES, LIS processing <u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. PDPS accesses data products from DSS by providing a UR that defines the product. Metadata is included in the product headers. No other information is required</u> <u>Items a, c, d, and e are not included in the current interface; any required metadata is included with the product.</u>
PGS-0500#A	4185	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to generate Level 1 through 4 Standard Products using validated algorithms and calibration coefficients provided by the scientists.	
PGS-0510#A	4186	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to generate metadata (see Appendix C) according to the algorithms provided by the scientists and associate this metadata with each Standard Product generated.	
PGS-0520#A	6610	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to generate data products from any single data input or combination of data inputs according to the algorithms provided by the scientists.	A: SDPF-generated L0 data: <u>Release A product generation services/capabilities are based on needs made known (e.g., via design reviews) to ECS by the TRMM instruments teams. These do not include generation of data products with optional or alternate inputs; data products with staging for subsetting a subsampling data sets services; and processing control language constructs which enable repeatable patterns for the frequency in which algorithm's processing requests are accomplished.</u>

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RBR_id	req_key	req_category	segment	req_type	s_verification_method	s_verification_status	a_verification_method	a_verification_status	text	interpretation text
PGS-0560#A	4189	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall maintain copies of generated products to be used as inputs to other scheduled products for processing efficiency.	A: CERES, LIS
PGS-0590#A	4190	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to indicate the temporary status of data stored in the DADS that is awaiting QA or human interaction in product production.	A: CERES, LIS <u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. Data is not stored temporarily in the DSS to await QA before being committed to storage. All data products that are produced are stored. In Rel B, subsequent processing may be delayed for some period waiting for QA before continuing with processing. No need identified in Rel. A for "man-in-the-loop" QA.</u>
PGS-0600#A	4191	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall provide an algorithm and calibration test and validation environment that is fully compatible with but isolated from the operational production environment.	A: CERES, LIS <u>This requirement supports conduct of science software I&T without impact to operations. "Isolation" from the production environment may be achieved through resource allocation rather than resource duplication. Mode Management will support this capability at Rel. A.1.</u>
PGS-0605#A	4193	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall process pre-launch test data and provide test data product samples for user verification.	A: CERES, LIS <u>The science software I&T process defined for ECS (supported by AITTL CI tools) will allow for testing & integration of instrument team (IT) provided science software with IT provided test data sets.</u>
PGS-0610#A	4194	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall accept from the SCFs new or modified calibration coefficients to be validated in the test environment. Calibration coefficients shall contain the following information at a minimum: a. Identification of coefficient data set b. Calibration coefficients values c. Author and version number d. Identification of related processing algorithm e. Start and stop date/time of applicability f. Date and time g. SCF identification h. Reasons for update	<u>Interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. Concepts for SSI&T and associated interfaces are described in "Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS" Document No. 205-CD-002-002.</u>
PGS-0620#A	4195	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to validate received calibration coefficients for completeness and correct format.	<u>Updated calibration files are validated through the science software I&T process, i.e., by running the science software and confirming that the results are consistent with SCF produced results. No specific file completeness and format correctness checks are done.</u>

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RBR_id	req_key	req_category	segment	req_type	s_verification_method	s_verification_status	a_verification_method	a_verification_status	text	interpretation text
PGS-0630#A	4196	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall send the DADS new or modified calibration coefficients which shall contain the following information at a minimum: a. Identification of coefficient data set b. Calibration coefficients values c. Author and version number d. Identification of related processing algorithm e. Start and stop date/time of applicability f. Documentation	<u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. PDPS accesses data products from DSS by providing a UR that defines the product. Metadata is included in the product headers. No other information is required. Items c, e, and f are not included in the current interface: current interface is defined by DID 311.</u>
PGS-0640#A	4197	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall accept from the SCF new or modified Standard Product algorithms to be tested at the processing facility. This software shall be received into the test environment and shall contain the following information at a minimum : a. Algorithm identification b. Algorithm source code c. List of required inputs d. Processing dependencies e. Test data and procedures f. Algorithm documentation	A: Adding the interface with the Dataserver, ESN and LaRC DAAC interface. <u>Science software may include these items and much more, or be only one of the items in an update package. Concepts for SSI&T and associated interfaces are described in "Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS" Document No. 205-CD-002-002.</u> <u>The test environment is the AITTL CI environment.</u>
PGS-0900#A	4201	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall send test products to the SCF for analysis. These shall contain the results of algorithm testing and shall contain the following information at a minimum: a. Algorithm identification b. Test time(s) c. Processor identification d. Test results	<u>Interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. Concepts for SSI&T and associated interfaces are described in "Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS" Document No. 205-CD-002-002.</u>
PGS-0920#A	4203	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to validate, through testing, that SCF processing algorithms will execute properly in the operational environment. Validation shall include final compilation and linkage of the source code and testing to verify proper software execution in the operational environment based on indicated data and test results provided by the SCF and the investigator, but shall not include scientific validation of products.	

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RBR_id	req_key	req_category	segment	req_type	s_verification_method	s_verification_status	a_verification_method	a_verification_status	text	interpretation text
PGS-0930#A	4205	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to transfer validated algorithm software and calibration coefficients from the test environment to the operational environment to be used in the production of Standard Products.	A: TRMM Transfer of algorithm implies verifying proper resource utilization resources.
PGS-0940#A	4216	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall provide storage for all candidate algorithms' software executables and calibration coefficients.	<u>The science processing systems including storage used for ordinary science processing will also be used for science software I&T. These resources will be allocated from the science processor pool for this purpose.</u>
PGS-0950#A	4217	mission essential	SDPS	functional	test	un-verified	test	unverified	The PGS shall interface to maintain configuration control of all algorithms and calibration coefficients used in operational Standard Product production. Controlled information shall contain at a minimum: a. Source code including version number and author b. Benchmark test procedures, test data, and results c. Date and time of operational installation d. Compiler identification and version e. Final algorithm documentation	
PGS-0960#A	4220	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall send the DADS new or modified algorithms. This delivery shall contain the following information at a minimum: a. Source code including version number and author b. Benchmark test procedures, test data and results c. Date and time of operational installation d. Final algorithm documentation e. Calibration coefficient values	A: CERES, LIS <u>Science software to be inserted to the SDSRV may include these items and much more, or be only one of the items in an update package. Interfaces do not include Date and Time of operational installation. Concepts for SSI&T and associated interfaces are described in "Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS" Document No. 205-CD-002-002.</u>
PGS-1010#A	4227	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall provide mass storage allocation subroutines that provide algorithms with a means for dynamic allocation of storage for temporary files.	
PGS-1020#A CCR 96-0303 provides L4 children	4230	mission essential	SDPS	functional	test	un-verified	test inspection	un-verified	The PGS shall provide mathematical libraries including: a. Linear algebra and analysis (e.g., LINPAC, IMSL) b. Statistical calculations (e.g., SAS, SPSS)	

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PGS-1030#A	4234	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall provide a toolkit to the SCF containing versions of the routines specified in requirements PGS-0970 to PGS-1020.	
PGS-1130#A	4252	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall receive product QA from the SCF which shall describe the results of the scientists product quality review at an SCF. Product QA shall contain the following information at a minimum: a. Identification of product b. QA results c. Product storage and processing instructions	A: CERES, LIS Metadata = Product ID, QA results, Product Storage and Processing Instructions. <u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. PDPS accesses data products from DSS by providing a UR that defines the product. Metadata is included in the product headers. No other information is required</u> Item c is not included in the current interface; current interface is defined by DID 311. SCF QA is intended to describe scientific quality of data.
PGS-1140#A	6645	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to provide the data product quality staff with the Product QA data from the SCF.	A: CERES, LIS The QA Metadata Update interface will allow SCF staff to peruse and modify the Science Quality Flag. The Automatic and Operational Quality Flags will also be displayed along with expository text.
PGS-1150#A	4255	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to accept the identification of products that are not to be stored in the DADS due to inferior quality or other reasons. The reason for all such actions shall also be specified.	<u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. All data successfully produced by a PGS will be stored to SDSRV.</u>
PGS-1190#A	4262	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to log the identification of all non-stored products or suspended processing directed by the data product quality staff to support the maintenance of performance statistics.	<u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. All data successfully produced by a PGS will be stored to SDSRV. No need identified in RelA for "man-in-loop" QA.</u> <u>Processing using a particular PGE may be halted by removing these jobs from the plan. Normal production reports will provide the required identification.</u>
PGS-1200#A	4263	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall have the capability to generate a data quality assessment report including a description of the quality of each processed product as well as the quality of each of the products input data sets.	<u>Reporting concept is to provide key data in the databases and let M&O define and develop needed reports using COTS report writing tools.</u> <u>All products can have quality indicator metadata. All standard products also contain references to products used in their generation.</u>

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PGS-1240#A	4269	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall send the generated Level 1 to Level 4 Standard Products to the DADS. These products shall contain the following information at a minimum: a. Product identification b. L1-L4 data set c. Product processing priority d. Current date and time e. Associated metadata	A: TRMM <u>Internal interfaces defined by Level 3s are not necessarily consistent with the current ECS architecture. PDPS accesses data products from DSS by providing a UR that defines the product. Metadata is included in the product headers. No other information is required</u> <u>Items c and d are not included in the current interface; the current interface is defined by DID 311.</u>
PGS-1250#A	4271	mission essential	SDPS	functional	test	un-verified	test	un-verified	The PGS shall send the DADS the calibrated ancillary data.	AM-1, Color <u>Calibrated ancillary data products are like any data product and can be stored to the Data Server</u>
PGS-1300#A	6194	mission essential	SDPS	performance	analysis	un-verified	analysis	un-verified	Each PGS shall provide a processing capacity four times the size necessary to process all EOS science data for which it is responsible, except for the Data Assimilation Office requirements shown in Appendix C, Table C-5a. It shall be possible to effectively utilize the entire reprocessing capacity at each site on computers with similar architectural design (e.g., parallel processors), for a single algorithm or any mix of algorithms normally run at that site. The four times processing capacity accounts for: a. 1 times to allow for normal processing demands b. 2 times to allow for reprocessing demands c. 1 times to allow for algorithm integration and test demands, production of prototype products, ad hoc processing for "dynamic browse" or new search and access techniques developed by science users, and additional loads due to spacecraft overlap.	RQMT will be phased so that processing capacity will be provided following 2 years after MSN launch. <u>Release A Processing capacity provided is equal to 1.2X normal processing for CERES on TRMM and .3X normal processing for AM-1 instruments. This will be provided only at the GSFC, LaRC and EDC DAACs. Totals provided as derived from the August, 1995 Technical Baseline (Release A procurement baseline) in MFLOPS is @ LaRC: 7125; @ GSFC: 3467, and @ EDC: 1086. These capacities include the 25% efficiency required by PGS-1301#A</u>
PGS-1301#A	4292	mission essential	SDPS	performance	analysis	un-verified	analysis	un-verified	The effective CPU processing rates used for sizing purposes in PGS-1300 shall not be greater than 25% of peak-related CPU capacity.	A: TRMM

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PGS-1310#A	6196	mission essential	SDPS	performance	analysis	un-verified	analysis	un-verified	The processing capacity necessary to process all EOS science data for which each PGS is responsible shall be based on the data volumes and instrument processing load requirements (MFLOPS) assigned to each DAAC.	<p>A: TRMM</p> <p><u>Instrument Assignment for Release A is for LaRC : 1.2X CERES on TRMM and .3X (MISR, MOPITT and CERES on AM-1); GSFC: .3X MODIS; and EDC: .3X MODIS and ASTER)</u></p>